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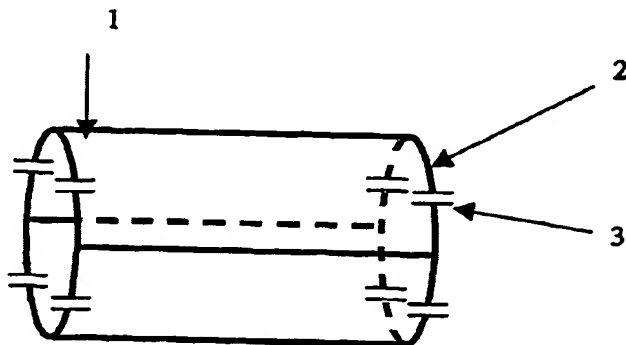
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(54) Title: **A HIGH DENSITY PLASMA REACTOR**



(57) Abstract: The high density RF plasma source of this invention uses a special antenna configuration to launch waves at frequency such as 13,56MHz. The tunability of this antenna allows to adapt actively the coupling of the RF energy into an evolutive plasma as found in plasma processings in semiconductor manufacturing. This plasma source can be used for the following applications : plasma etching, deposition, sputtering systems, space propulsion, plasma - based sterilization , plasma abatement systems. In another embodiment, the plasma source is in conjunction with one or several process chambers , which comprise an array of magnets and RF coils too . These elements can be used, on one hand, for plasma confinement or the active plasma control (Plasma rotation) thanks to feedback control approach , and one the other hand, for a process chamber , before or after the plasma process,

in situ NMR Monitoring or analysis such as moisture monitoring inside a process chamber , before or after the plasma process, or for in situ NMR Inspection of wafers or others workpieces.